

WHAT IS CLAIMED IS:

1. A method to measure an application's performance in a network,
comprising within a thread, monitoring a flow having one or more frames
by calculating:

an amount of time each of the frames is processed on a sending node in a
network;

an amount of time each of the frames is processed on a receiving node in
the network; and

an amount of time each of the frames is in transit across the network.
2. A method to analyze network performance resulting from a task,
comprising:

displaying a first time representing a time that one or more meaningful
frames are in a network traveling in a first direction;

displaying a second time representing a time that one or more meaningful
frames are in the network traveling in a second direction;

displaying a third set of times representing times that each of one or more
nodes in the network is active.
3. The method of claim 2, wherein the first and second times, and the third
set of times are displayed in a chart, and:

each of the first and second times is represented by a bar that shows at

least one of:

a cumulative time that it took for the one or more meaningful frames
to be inserted into the network;

the portion of time that the one or more meaningful frames were in
the network as a result of queueing in routers,
processing, and propagation (QPP).

the third set of times for a given node is represented by a bar that shows
at least one of:

a total amount of time that the given node was processing during
the task; and

a total amount of time that the given node was sending during the
task, but not processing.

4. The method of claim 3, wherein the insertion time for each frame is computed as $\text{AdjustedBytes} * 8 / \text{Bandwidth}$, AdjustedBytes being used to indicate the bytes that would have occurred at the point the frame crossed a WAN (Wide Area Network) link in the network.
5. The method of claim 2, wherein the first and second times, and the third set of times are displayed in a detailed report.
6. The method of claim 5, wherein the detailed report comprises one or more of:

an overall summary comprising the duration of the task;

a traffic section comprising byte and frame information;

a network busy time section comprising information about how busy the network was during the task, and how the busy time breaks down into insertion time and QPP time;

network frame transit statistics section comprising various transit times for each frame;

a node active time section comprising information about the processing and sending times for each node in the network; and

a node processing statistics section comprising statistics on the node processing periods.

7. A method to monitor network performance resulting from a task, comprising displaying a processing time corresponding to a first node in the network, each processing time having one or more attributes, including a processing type.
8. The method of claim 7, wherein the processing type comprises any one of:
 - a time period prior to a first data frame in a thread sent by a client;
 - a time period prior to a subsequent request within a thread is sent by the client;
 - a time period from a last data frame to the end of the task;

a time at which the node corresponding to the processing time stopped
processing;

a start frame representing a frame number at the beginning of the
processing time;

a description of the start frame;

an end frame representing a frame number at the end of the processing
time; and

a description of the end frame.

11. A method to analyze network performance, comprising generating a flows
report to monitor a given flow, the given flow having one or more frames
that are sent from a sending node to a receiving node, and the flows
report having one or more attributes including:

an errors attribute depicting the number of errors belonging to the one or
more frames;

a sending node attribute indicating the sending node;

a receiving node attribute indicating the receiving node;

a data duration attribute indicating a time period from when the sending
node sent a first frame in the flow to the time that the
receiving node received the last frame having data in the
flow;

an average data rate attribute indicating an average data rate for the flow;

a bytes attribute indicating a total number of bytes in the frames in the
flow;

a data payload bytes attribute indicating a sum of the payload bytes for the
frames in the flow;

a frames attribute indicating a number of frames in the flow;

a data frames attribute indicating a number of frames having data in the
flow;

a first frame attribute indicating a sequence number of the first frame in
the flow;

a last data frame attribute indicating a sequence number of the last frame
having data in the flow;

a last frame attribute indicating the sequence number of the last frame,
having one of data and acknowledgement;

a start time attribute indicating a time that the first frame having data was
sent;

an end data time attribute indicating a time that the last frame having data
was received;

an end time attribute indicating a time that the last frame, having one of
data and acknowledgement, was received;

